

USSR

UDC 519.214

ANORINA, L. A. and NAGAYEV, A. V.

"Integral Limit Theorem for Sums of Independent Two-Dimensional Random Vectors Allowing for Large Deviations in the Case When Kramer's Condition is Not Satisfied"

Tashkent, Sluchayn. protsessy i smezhn. vopr.--Sbornik (Random Processes and Related Problems -- Collection of Works), Part 2, 1971, "Fan", pp 2-11 (from Referativnyy Zhurnal -- Matematika, No 9, Sep 71, Abstract No 9V73, by V. Petrov)

Translation: Suppose  $A_\alpha$  is a region bounded by the close contour  $\alpha_x(\varphi) = \{\alpha_{x_1}(\varphi), \alpha_{x_2}(\varphi)\}$ ;  $\{\xi_n\}$  is a sequence of independent, identically distributed, random, two-dimensional vectors with mathematical expectations equal to zero and with finite second moments. It is assumed that the distribution

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ANORINA, L. A. and NAGAYEV, A. V., Sluchayn. protsessy i smezhn. vopr.--  
Sbornik, Part 2, 1971, pp 2-11

$\xi_1$  is absolutely continuous with the density  $p(x) = |x|^{-\beta} (1 + \varepsilon(x))$ , where  $\beta > 4$ ,  $\varepsilon(x) \rightarrow 0$  as  $|x| \rightarrow \infty$ ,  $x = (x_1, x_2)$ ,  $|x| = \sqrt{x_1^2 + x_2^2}$ . If the contour  $A_1$  has actually only a finite number of points in which  $x_1'(\varphi) = x_2'(\varphi) = 0$  and if the point  $(0, 0)$  lies within the region  $A_1$ , then

$$P\left(\frac{1}{\sqrt{n}}(\xi_1 + \dots + \xi_n) \in A_\alpha\right) \sim nP(\xi_1 \in A_\alpha)$$

as  $n \rightarrow \infty$  and  $\frac{\alpha}{\sqrt{n \log n}} \rightarrow \infty$ .

2/2

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USSR

UDC: 519.214

ANORINA, L. A., NAGAYEV, A. V.

"An Integral Limit Theorem for Sums of Independent Two-Dimensional Random Vectors With Regard to Large Deviations in the Case Where Cramer's Condition is not Satisfied"

V sb. Sluchayn. protsessy i smezhn. vopr. Ch. 2 (Random Processes and Related Problems--collection of works. Part 2), Tashkent, "Fan", 1971, pp 3-11 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V73)

Translation: Let  $A_1$  be a region bounded by the closed contour  $\alpha_1(\varphi) = \{\alpha_1(\varphi), \alpha_2(\varphi)\}$ , and let  $\{\xi_n\}$  be a sequence of independent identically distributed two-dimensional vectors with mathematical expectations equal to zero and with finite second moments. It is assumed that the distribution of  $\xi_1$  is absolutely continuous with density  $p(x) = c \exp(-|x|^\beta)$ , where  $\beta > 1$ ,  $c(\beta) \rightarrow 0$  as  $\beta \rightarrow \infty$ ,  $x = (x_1, x_2)$ ,  $|x| = \sqrt{x_1^2 + x_2^2}$ . If the contour of  $A_1$  has at most a finite number of points at which  $\alpha_1'(\varphi) = \alpha_2'(\varphi) = 0$ , and if the point  $(0,0)$  is inside region  $A_1$ , then

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ANORINA, L. A., NAGAYEV, A. V., Sluchayn. protsessy i smezhn. voopr. Ch. 2,  
Tashkent, "Fan", 1971, pp 3-11

$$P\left(\frac{1}{\sqrt{n}}(\xi_1 + \dots + \xi_n) \in A_\alpha\right) \sim nP(\xi_1 \in A_\alpha)$$

when  $n \rightarrow \infty$  and  $\frac{\alpha}{\sqrt{n \log n}} \rightarrow \infty$ . V. Petrov.

USSR

ANOROV, V. F.

"One Form of Equations of Motion of a Flight Vehicle"

Tr. Pyatykh Chteniy, Prosvyashch. Prazbotke Nauch. Naslediya i Razvitiy Iday. K. E. Tsiolkovskogo, 1970. Sekts. Mekh Kosmich. Poleta, [Works of Fifth Readings Dedicated to Development of the Scientific Heritage and Ideas of K. E. Tsiolkovskiy, 1970, Section on "Space Flight Mechanics"], Moscow, 1971, pp 88-94. (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No. 1B369 by V. I. Kholyavko).

Translation: The equations of motion of a spacecraft in the atmosphere are described in a velocity system of coordinates; the rotation of the vehicle around its center of mass is described using the same angles of orientation of the spacecraft as are used for determination of the aerodynamic forces and moments acting on it (angles of attack, bank and slip). This reduces the number of computation operations (in the three final equations) and correspondingly reduces machine time required for calculation.

1/1

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1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--TIME OPTIMAL FLAT TURN OF SOLID BODY -U-  
AUTHOR--(02)--ANDROV, V.P., KUROVIN, V.N.  
COUNTRY OF INFO--USSR  
SOURCE--AVTOMATIKA I TELENMEKHANIKA, 1970, NR 4, PP 14-25  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--TIME OPTIMAL CONTROL, SOLID DYNAMICS, FREE PATH, VECTOR,  
VECTOR ANALYSIS, MATHEMATIC ANALYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0594 STEP NO--UR/0103/70/000/004/0014/0025  
CIRC ACCESSION NO--AP0121263  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0121263

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE IS INVESTIGATED THE PROBLEM OF THE OPTIMAL BY QUICK RESPONSE TURN OF AN ARBITRARY FREE SOLID BODY RELATIVE TO ITS ARBITRARY MOTIONLESS AXIS. IT IS ASSUMED THAT THE PROJECTIONS OF THE VECTOR OF THE CONTROLLING MOMENTUM ON THE MAIN AXES OF THE INERTIA OF A ROTATING BODY ARE RESTRICTED IN VALUE, BUT THE ANGLE VELOCITY BOTH AT THE BEGINNING AND AT THE END OF THE TURN TO THE SET ANGLE IS EQUAL TO ZERO. OPTIMAL CONTROL IS SYNTHESIZED. A NUMERIC EXAMPLE IS GIVEN.

UNCLASSIFIED

1/3 013 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--CHLORINATION OF O,CARBORANYLMAGNESIUM BROMIDES AND DETERMINATION OF  
THE STRUCTURE OF C,B,DICHLORO,O,CARBORANES -U-  
AUTHOR--(02)-STANKO, V.I., ANDROVA, G.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 646-51

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHLORINATED ORGANIC COMPOUND, CARBORANE, MAGNESIUM COMPOUND,  
GRIGNARD REAGENT, BROMINATED ORGANIC COMPOUND, ORGANOLITHIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1476

STEP NO--UR/0079/70/040/003/0646/0651

CIRC ACCESSION NO--AP0135144

UNCLASSIFIED



2/3 013

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135144

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE GRIGNARD REAGENT FROM 0.03 MOLE 12,CHLORO,O,CARBORANE AND ETMGBR IN TETRAHYDROFURAN (THF) WAS ADDED TO 0-5DEGREES TO CCL SUB4-C SUB6 H SUB6 AND KEPT 0.5 HR, THEN AT 0DEGREES 15 MIN, TO YIELD 11PERCENT 1,4,(5),12,TRICHLORO,O,CARBORANE, M. 145-9DEGREES, AND 15PERCENT 1,7(8),12 ISOMER, M. 127-9DEGREES; CHLORINATION, WITH CL, OF 12,CHLORO,P,CARBORANE GAVE THE SAME PRODUCTS IN SIMILAR YIELDS. 1,CHLORO,O,CARBORANE IN CCL SUB4 TREATED WITH CL 1 HR GAVE 1:3 MIXT. OF 1,10,DICHLORO,O,CARBORANE, M. 165-7DEGREES, AND 1,12 ISOMER, M. 152-4DEGREES. 1,BROMO,O,CARBORANE AND CL,CCL SUB4,ALCL SUB3 GAVE 15PERCENT 1,BROMO,10,CHLORO,O,CARBORANE,M. 164-5DEGREES AND 12PERCENT 1,BROMO,12,CHLORO ISOMER, M. 126-9DEGREES; BROMINATION OF THE GRIGNARD REAGENT GAVE SIMILAR RESULTS. BULI AND 1,METHYL,10 AND 12,CHLORO,O,CARBORANE MIXT. IN ET SUB2 O ADDED TO CCL SUB4 AND TREATED WITH 1 MOLE CL GAVE 39PERCENT MIXED ISOMERS, SEPD. CHROMATOGRAPHICALLY INTO 19PERCENT 1,METHYL,2,10,DICHLORO,O,CARBORANE, M. 175-6DEGREES, AND 16PERCENT 2,12 DICHLORO ANALOG, M. 149-50DEGREES. 1,METHYL,2,CHLORO,O,CARBORANE IN CCL SUB4 REFLUXED WITH CL 24 HR GAVE A LOW YIELD OF 1,METHYL,2,9,10,11,12,PENTACHLORO,O,CARBORANE, M. 236-8DEGREES, ALSO PREPD. FROM 1,METHYL,9,10,11,12,TETRACHLORO,O,CARBORANE AND BULI IN ET SUB2 O ADDED TO CCL SUB4. GRIGNARD REAGENT FROM BROMO, METHYL,O,CARBORANE AND MG IN THF WAS TREATED WITH 1 MOLE ETMGBR, HEATED 15 MIN AND ADDED TO 1 MOLE CLIN C SUB6 H SUB6 AT 5DEGREES TO YIELD A MIXT. OF 8PERCENT 1,METHYL,2,CHLORO,O,CARBORANE, 43PERCENT 1,METHYL,2,9,DICHLORO,O,CARBORANE (I) M. 220-2DEGREES, AND 49PERCENT

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3/3 013

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135144

ABSTRACT/EXTRACT--ETMGBR ADDED TO 0.5 MOLE 1,METHYL,2,CHLORO,O,CARBORANE,  
HEATED 15 MIN AND TREATED WITH 2 MOLES CL IN C SUB6 H SUB5 AT 5-7DEGREES  
GAVE 8PERCENT 1,METHYL,2,CHLORO,O,CARBORANE, 68PERCENT I, AND 24PERCENT  
METHYL,O,CARBORANE.

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USSR

UDC: 620.197.3

ANOSHCHENKO, I. P., BORCHENKO, A. P., and LUK'YANOVA, G. I., Novocherkassk Polytechnic Institute

"Effect of Antimony Trichloride on the Corrosion Behavior of Titanium in Sulfuric and Hydrochloric Acids"

Moscow, Mashchita Metallov, Vol. 6, no. 4, 1981, pp. 40-42, 43-44.

Abstract: Earlier research shows that the dissolution rate of titanium in 2 n. solution of HCl sharply decreases in the presence of triply charged cations. This study involves their effect on the behavior of VT1-0 titanium in chemically pure 5 n. sulfuric and hydrochloric acids. Parallel tests (by gravimetry) were conducted on 3 specimens for each acid at 80°C. The duration of the experiment was 3 hours. Polarization measurements were made in open air in a cell with separated electrode spaces. A table in the original article shows that with a deficient content of  $\text{SbCl}_3$ , the dissolution rate increases, apparently due to the cathodic reaction  $\text{Sb}^{3+} + 3e \rightarrow \text{Sb}$ ,  $E_0 = +0.20\text{v}$  or  $\text{SbO}^+ + 2\text{H}^+ + 3e \rightarrow \text{Sb} + \text{H}_2\text{O}$ ;  $E_0 = +0.212\text{ v}$ . Passivation sets in above the "critical"

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ANOSHCHENKO, I. P., et al, Zashchita Metallov, Vol. 6, no. 4, Jul-Aug 70,  
pp 443-444

concentration and the corrosion rate sharply drops. With cathodic polarization, metallic antimony separates and appears on the surface of titanium. In the presence of  $\text{SbCl}_3$  the anodic polarization curve lies completely within the passive state region. The corrosion resistance of VT1 titanium, which equals zero in sulfuric and hydrochloric acid solutions at various temperatures, rises sharply in the presence of sufficient amounts of triply positively charged Sb cations, while the below-critical concentration the corrosion rate increases.

2/2

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--CLINICO LABORATORY PECULIARITIES OF CURRENT DYSENTERY ACCORDING TO  
MATERIALS OF KRASNODAR SECOND CITY HOSPITAL -U-  
AUTHOR--(05)--KLOKOVA, G.F., PODVARKO, A.G., TSYS, N.S., ANDOSHINA, L.I.,  
GUNCHAROVA, YE.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6,  
PP 37-40  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DYSENTERY, ANTIBIOTIC RESISTANCE, STREPTOMYCIN,  
CHLORAMPHENICOL/(U)BIUMYCIN ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0833

STEP NO--UR/0016/70/000/006/0037/0040

CIRC ACCESSION NO--AP0126510

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--300C770

CIRC ACCESSION NO--AP0126510

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF 258 CASE HISTORIES OF PATIENTS SUFFERING FROM DYSENTERY WITH BACTERIOLOGICALLY CONFIRMED DIAGNOSIS; CLINICO LABORATORY INDICES OF THE DISEASE WERE COMPARED IN 1957 (122 PATIENTS) AND IN 1967 (136 PATIENTS). A PREVALENCE OF SONNE DYSENTERY IN 1967 WAS NOTED (80PERCENT); IT DIFFERED FROM FLEXNER DYSENTERY BY A Milder COURSE, AN INCREASE IN THE NUMBER OF ATYPICAL, LATENT FORMS AND OF FORME FRUSTE, AND ALSO BY A LESSER INCIDENCE OF THE CHANGE TO CHRONIC FORM. IT APPEARED THAT 59.5PERCENT OF ALL THE SONNE STRAINS WERE RESISTANT TO CHLORAMPHENICOL, BIOMYCIN AND STREPTOMYCIN. FACILITY: KUBANSKIY MEDITSINSKIY INSTITUT IM. KRASNYY ARMIY I GORODSKAYA BOL'NITSA NR 2, KRA SNODAR.

UNCLASSIFIED



We are now conducting a wide search for new methods of sensory and cerebral stimulation, and just a few of the experiments which are being conducted would fill an entire book, if not more.

A number of scientists -- above all, of the electrical engineering department, radio, color, and television, and control engineering, and in the field of electronics -- are studying and conducting these experiments. However, certain activities and departments present an aspect of the problem of improving the methods of stimulating production and increasing the effectiveness of science. They seek to get a mechanical increase in wages by means of the establishment of all kinds of scientific institutions, enterprises, institutes, and organizations to heighten their scientific management, labor, and to improve stimulation without first conducting experiments is also impossible because stimuli have to be chosen through a person's consciousness and abstract calculations alone can in practice prove to be ineffective.

A study and generalization of the results of the experiments will provide important material for a further improvement of the systems of stimulation which are in keeping with the demands of the entire range of our socialist economy. Perhaps in 1972, Leningradian science will describe the most interesting experiments in the field of stimulating labor. Can we hope for that?

Question: Indeed!... Thank you for the interview about our readers' letters.

2939  
CSO: 1822-M

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USSR

UDC 547.26'116 + 543.226

PUDOVIK, A. N., KONOVALOVA, I. V., ANOSHINA, N. P., and ROMANOV, G. V.,  
Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy  
of Sciences USSR and Kazan' State University imeni Ul'yanov-Lenin

"Determination of the Activation Energy of the Phosphonate-Phosphate  
Rearrangement and of Some Other Reactions by the Method of Differential-  
Thermal Analysis"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2153-2156

Abstract: Determination of the activation energy of the decomposition of  
sodium bicarbonate, isomerization of the ethylphosphonous acid diallyl  
ester, phosphonate-phosphate rearrangement, and the breakdown of  $\alpha$ -  
hydroxyalkylphosphonates and their analogs was carried out by means of the  
differential thermal analysis (DTA). A satisfactory agreement has been  
achieved between the calculated and literature data. It has been shown  
that DTA may be used in determining  $E_{act}$  for thermal reactions of  $\alpha$ -hydro-  
xyalkylphosphonates.

1/1

USSR

UDC 547.341'139.81+547.391

PUDOVIK, A. N., BATYEVA, E. S., NESTERENKO, V. D., and ANOSHINA, N. P.

"Reaction of Analides of Dialkyl Phosphorous and Diaryl Phosphonous Acids with *p*-Quinones"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 32-37

Abstract: In continuation of the study of the reactions of acid amides of trivalent phosphorous with compounds containing an activated carbonyl group [A. N. Pudovik, et al., Izv. AN SSSR, Ser. Khim., 510, 1972], a study was made of the reactions of analides of dialkyl phosphorous and diaryl phosphonous acids with different substituted and unsubstituted *p*-quinones and *p*-naphthoquinone. The amides of dialkylphosphorous and diaryl phosphonous acids react with *p*-quinones with the formation of O,O-dialkyl-O-*p*-hydroxy aryl-*p*-arylinido phosphates and phosphinates. The O,O-dialkyl-O-*p*-hydroxyaryl-N-arylinido phosphates are subjected to thermal regrouping into O-alkyl-O-*p*-alkoxyaryl-N-arylamido phosphates.

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USSR

UDC 542.91+541.6:547.1'118

ANOSHINA, N. P., GOL'DFARB, E. I., VOSKRESENSKAYA, O. V., KIRPICHNIKOV, P. A., and MUKOMENOV, E. T., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, and Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Use of the Arbuzov Reaction to Establish the Structure of Tricyclic D-Mannitol Triethyl Triphosphite"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 72, pp 1390-1395

Abstract: The authors used the Arbuzov reaction to establish the ring size in tricyclic D-mannitol triethyl triphosphite. A study was made of the reaction with ethyl bromide of tricyclic triethyl triphosphite and phosphites which model it, obtained from 1,2; 5,6-di- and 3,4-O-isopropylidene-, as well as 1,3; 4,6-di- and 2,5-O-methylene-D-mannitols. Differential thermal analysis and  $^{31}\text{P}$ -NMR data indicate that tricyclic D-mannitol triethyl triphosphite represents 2-ethoxy-4,5-bis-(2'-ethoxy-1',3',2'-dioxaphospholanyl-4')-1,3,2-dioxaphospholane.

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USSR

UDC 542.91:547.1'118

PUDOVIK, A. N., DMITRIYEVA, G. V., ~~ANOSHINA, N. P.~~, ZYABLIKOVA, T. A., and KHAYRULLIN, V. K., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of Chlorophosphines with  $\beta$ -Chloroacrylic Acid"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 5, May 72, pp 1159-1164

Abstract: The article describes the reaction of methyl-, ethyl-, and phenyl-dichlorophosphine with  $\beta$ -chloroacrylic acids, as well as results of thermographic studies of some reactions of this type. The reaction of methyl-, ethyl- and phenyldichlorophosphine with cis- $\beta$ -chloroacrylic acid gives alkyl- or aryl-( $\beta$ -chloroformylvinyl)phosphinic acid chlorides, while the reaction with trans- $\beta$ -chloroacrylic acid gives trans- $\beta$ -chloroacrylic acid chloride.

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USSR

UDC 547.241+547.391.1

GAZIZOV, T. Kh., VASYANINA, M. A., PASHINKIN, A. P., ANOSHINA, N. P.,  
GOL'DFARB, Z. I., and PUDOVIK, A. N., Institute of Organic and Physical  
Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Mechanism of the Reaction of Diethyl Chlorophosphite With Acrylic Acid"

Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1957-1961

Abstract: The study of the reaction of diethyl chlorophosphite with acrylic acid using  $P^{31}$  NMR and thermography gives rise to the conclusion that protonation of the phosphorus atom either completely initiates or predominates in the reaction which is followed by the addition of diethylphosphorus acid (an intermediate product formed in the early stage of the reaction) to the acrylic acid chloride. The experimental portion of the paper covers in detail the reactions of diethyl chlorophosphite with acrylic acid, diethyl acroyl phosphite with hydrogen chloride and diethylphosphorous acid with acrylic acid chloride.

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USSR

UDC 621.385.032.213:621.385.032.11--621.52

SHTRONBERGER, L.V., ANOSHKIN, A.V.

"Use Of Mixed Scheme Of Evacuation During Processing Of Oxide Cathodes"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue No 10, pp 144-148 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2All6)

Translation: A method is presented for evacuation of electrovacuum devices by a mixed scheme combining oil and non-oil evacuation. At the first station (removal of gases confined in the free space of the device, gases released during warmup of the system, and gases released during burning out of the binder and decomposition of carbonates) evacuation is conducted by oil-vapor diffusion pumps through a trap which is cooled by liquid nitrogen. With a decrease of gas separation (after decomposition of the carbonates) evacuation continues with a magnetic electrodischarge pump, and the oil-vapor pump with the trap are separated from the system by a lock. A negligible gas separation at the terminal stages of processing the cathode makes it possible to employ electrodischarge

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SHTROMBERGER, L. V., et al, Elektron. tekhnika. Nauchno-tekhn.  
sb. Elektron SVCh, 1970, Issue No 10, pp 144-148

pumps of low performance. The entire cycle of evacuation from the start-up of an oil-vapor diffusion pump to the establishment of a normal regime of current takeoff [tokootbor] from the cathode is continued for 36 hours. The method of evacuation presented makes it possible to reduce the time for processing the device at the evacuation station, to give up the use of small units, and to maintain a preference for non-oil evacuation. 4 ill. 3 ref. G.B.

2/2

- 42 -

ACC NR: AP7016871 SOURCE CODE: UR/0413/67/000/008/0084/0084

INVENTOR: Khodkin, V. I.; Khazanova, T. P.; Karsanov, G. V.; Tirkina, A. N.; Gerasimova, M. I.; Anoshkin, N. F.; Smal'shchenko, V. A.; Kaganovich, I. N.

ORG: none

TITLE: Master alloy. Class 40, No. 194322

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1967, 84

TOPIC TAGS: master alloy, chromium molybdenum alloy, aluminum containing alloy

ABSTRACT: This Author Certificate introduces a master alloy containing aluminum and molybdenum. To distribute the alloying elements uniformly in an ingot, this master alloy also contains chromium. The composition of the alloy is set as follows (2): 6—8 aluminum, 39—42 molybdenum, 51—54 chromium. [TD]

SUB CODE: 11/ SUBM DATE: none

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UDC: 669.26'28'71.5.002.2



Monograph

007

ACC NR: AN700175

Dobatkina, Vladimir Ivanovich; Anoshkin, Nikolay Fedorovich; Andreyev, Aleksandr Leonidovich; Bochvar, Georgiy Andreyevich; Munatov, Mark Ivanovich; Tetyukhin, Vladislav Valentinovich; Chistyakov, Yevgeniy Petrovich

Ingots of titanium alloys (Slitki titanovykh splavov) Moscow, Izd-vo "Metallurgiya," 1966, 285 p. illus., biblio. Errata slip inserted. 2,300 copies printed.

TOPIC TAGS: vacuum melting, titanium alloy, metal ingot, vacuum furnace, metal crystallization

PURPOSE AND COVERAGE: This book is intended for engineering personnel at plants and scientific workers of research institutes. It may also be useful to students and aspirants specializing in the field of metal study, casting of nonferrous alloys, and also in the study of new metal melting methods. The book summarizes results of using vacuum-arc melting of titanium alloys and outlines the modern technology of producing ingots. Particular attention is paid to problems of crystallization and ingot structure. Shrinkage phenomena, segregation and interaction between metal and gases, as well as redistribution of alloying elements during

UDC: 669.245

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ACC NR: AM700175

Monograph

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the melting are discussed. On the basis of an analysis of experimental findings, new concepts are developed and general laws governing the formation of ingot structure in vacuum-arc melting are discussed. On the basis of an analysis of experimental findings, new concepts are developed and general laws governing the formation of ingot structure in vacuum-arc melting with a consumable electrode are determined. Suggestions are made for selecting optimum technological conditions of melting and for improving ingot quality, and preventing defects.

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ACC NR:AM700175

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ACC NR: AM/700175

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SUB CODE: 13/ SUBM DATE: 23Jun66/ ORIG REF: 070/ OTH REF: 022/

USSR

UDC 669.295.018.2(003.8)

TURKINA, A. N., ODOYEVSKIY, L. S., KHAZANOVA, T. P., KARSANOV, G. V.,  
ANOSHKIN, N. F., TSISTYANOV, Ye. P., PAVLOV, A. G., TRUBIN, A. N., and  
TETYUKHIN, V. V.

"Master Alloy for Production of High-Strength Titanium Alloys"

USSR Author's Certificate No 309061, filed 15/07/69, published 20/09/71  
(Translated from Referativnyy Zhurnal Metallurgiya, No 3, 1972, Abstract  
No 36159P by G. Svodtseva)

Translation: A master alloy for the production of high-strength Ti alloys, containing Mo, V, and Al. To increase the quality of the ingots produced, the alloy includes Cr and Fe with the following relationships of components (in %): Mo 32-34, V 32-34, Al 18-22, Cr 6-8, Fe 5-7. The master alloy can be produced either by direct smelting of the metals in an open induction furnace or by an aluminothermal method in a furnace.

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USSR

UDC 669.295.5'71'296'787.018.29(088.8)

KORNILOV, I. I., VAVILOVA, V. V., ANOSHKIN, N. E., FATKULLINA, L. P., and PERADZE, T. A.

"Titanium-Base Alloy"

USSR Authors' Certificate No 298677, Cl. C 22c 15/00, filed 29 Dec 69, published 12 May 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 11755P by S. Kalabukhova)

Translation: A new Ti alloy with elevated strength properties is suggested. The Ti-base alloy containing Al and Zr as alloying additions is strengthened by the introduction of small quantities of O. The alloy contains (in %) Al 2-3, Zr 4-5, O 0.3-0.5, Ti the remainder. Mechanical properties of the alloy:

$\sigma_B$ (20°)	90-120 kg/mm <sup>2</sup> ,	$\sigma_T$	85-115 kg/mm <sup>2</sup> ,	$\delta$	10-25%,	$\psi$	30-52%;
$\sigma_B$ (500°)	40-45 kg/mm <sup>2</sup> ,	$\sigma_T$	30-35 kg/mm <sup>2</sup> ,	$\delta$	17-20%,	$\psi$	46-48%.

The alloy can be employed as a construction material. Semifinished products such as bars, sheets, and forgings can be made from it.

1/1

UDC 620.193.1:669.295

USSR

TOMASHOV, N. D., ANOSHKIN, N. F., MOROZNIKOVA, S. V., CGINSKAYA, YE. I.,  
RUSKOL, YU. S., and CHERNOVA, G. P., Institute of Physical Chemistry, Academy  
of Sciences USSR

"Investigation of the Effect of Palladium on the Engineering, Mechanical and  
Corrosion Properties of Titanium Alloys OT4 and VT14"

Moscow, Zashchita Metallov, Vol 9, No 6, 1973, pp 672-675

Abstract: The possibility of increasing the corrosion resistance of titanium alloys OT4 and VT14 by means of alloying with 0.2% Pd was studied. The alloys were produced in a vacuum-arc furnace with the palladium added in the form of powder. Structure of OT4 and OT4+0.2% Pd was the alpha-solid solution, and VT14 and VT14+0.2% Pd--fine grains of the alpha- and alpha"-phases inside a beta-matrix. Strength properties of the titanium alloys were improved somewhat with the addition of palladium while ductility was lowered. The addition of 2.0% Pd significantly lowered the oxidation tendency of the alloys at 600 and 800°C, and especially at 1000°C. 3 figures, 4 tables, 6 bibliographic references.

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USSR

UDC 621.315.592

ANOSOV, I.V., KUROVA, I.A., ORMONT, N.N. [Moscow State University imeni M. V. Lomonosov]

"On Some Electrical And Optical Properties Of Acousto-Electric Domains In GeAs"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 625-631

Abstract: The work is devoted to a detailed study of the distribution of the field in a specimen and to the establishment of the connection between the electrical characteristics in the domain and the infrared radiation. The experiments were conducted at room temperature on  $12 \times 0.4 \times 0.7$  mm GeAs specimens with  $n = 2 \cdot 10^{15} \text{ cm}^{-3}$  and  $\mu = 4000 \text{ cm}^2/\text{v. sec}$ , oriented in the  $[110]$  direction. In specimens of compound section the effect was also studied of artificially created nonuniformities on the motion and properties of the domain. Infrared radiation from specimens with an acousto-electric domain is studied. At the boundary of the nonuniformities, where the field increases in the domain as a result of the effects of the acousto-electric flux, infrared radiation with a maximum of  $\lambda \sim 9100 \text{ \AA}$  appears. Possible mechanisms of the radiation are considered. The authors thank N.I. Paninoy for production of the specimens and V.S. Vavilov for discussion of the results of the work. 6 fig. 8 ref. Received by editors, 4 June 1971.

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USSR

UDC 615.372:576.851.555].015.45:  
[612.11+612.112.3+612.419

ANOSOV, I. Ya., LARINA, I. A., and ISPOLATOVSKAYA, M. V., Institute of  
Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences  
USSR

"Effect of Lecithinase C From *Clostridium perfringens* Type A on the Blood,  
Bone Marrow, and Phagocytic Activity of Leukocytes of Guinea Pigs Immunized  
With Analecithinase"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971,  
pp 65-69

Abstract: Guinea pigs immunized twice with analecithinase received a lethal dose of lecithinase C from *Cl. perfringens* type A 14 days later. Aside from slight lysis of erythrocytes accompanied by brief acceleration of the ESR, the peripheral blood and bone marrow cells did not undergo the progressive qualitative and quantitative changes observed in the nonimmunized control after intramuscular injection of 1 MLD of lecithinase C or a culture of *Cl. perfringens* type A. Immunization of the guinea pigs with analecithinase also protected the phagocytic activity of the leukocytes from the hemolytic action of lecithinase C. The effect was the same as that in animals that received *Cl. perfringens* type A toxoid. The microbes phagocytized by the leukocytes were digested, i.e., the microbial cells completely disintegrated.

177

USSR

UDC 612.12+612.419].014.46:576.851.555.098.31

ANOSOV, I. Ya., ISPOLATOVSKAYA, M. V., and LARINA, I. A., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"The Effect of C-Lecithinase from Type A cl. perfringens on Guinea Pig Blood and Bone Marrow"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, Aug 70, pp 117-122

Abstract: Guinea pigs were injected intramuscularly with purified C-lecithinase isolated from type A Cl. perfringens toxin (1 MLD). The animals developed hypochromic anemia, accompanied by aniso- and poikilocytosis, hemolysis, normoblastosis, accelerated ESR, and, in the white blood cells, eosinopenia, leukocytosis (changing to leukopenia with a shift to the left due to the appearance of rod nuclei, immature forms, and myelocytes), slight lymphocytosis against the background of leukopenia, and degeneration of formed elements, which intensified as the pathological processes developed. Edema, pronounced hyperemia, extensive hemorrhages, and karyopyknosis of many cells were evident in bone marrow within 4 hours of injection of C-lecithinase. The number of cells containing RNA and alkaline phosphatase decreased substantially. Erythropoiesis and leukopoiesis

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USSR

ANOSOV, I. Ya., et al, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii.  
No 8, Aug 70, pp 117-122

were depressed. The symptoms produced by intramuscular injection of C-lecithinase from type A *Cl. perfringens* are quite similar to those observed in experimental gas gangrene.

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Microbiology

USSR

UDC 615.372:576.851.555].015.45+576.851.555.097.29

ANOSOV, I. Ya., and KLIMACHEVA, L. V., Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of Medical Sciences USSR

"Morphological and Some Histochemical Changes in Guinea Pigs Produced by *Cl. perfringens* type A Hyaluronidase"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 133-136

Abstract: In vitro experiments showed that hyaluronidase isolated from *Cl. perfringens* type A toxin depolymerized hyaluronic acid of the ground substance of connective tissue (Wharton's jelly) from human umbilical cord. In guinea pig Achilles tendon, it caused the dense collagen bundles to separate into collagen fibers without undergoing necrosis. Intramuscular injection of guinea pigs with the enzyme caused a serous-exudative inflammation accompanied by edema, impairment of vascular permeability (intermuscular and endoneural diapedeses), slight alteration of muscular tissue, and disappearance of acid mucopolysaccharides from the dense connective tissue, endomysium, perimysium, and muscular walls of the blood vessels.

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USSR

UDC 621.762.002.5(088.8)

ANOSOV, N. S.

"Vertical Furnace for Sintering Metal Ceramic Products"

USSR Author's Certificate No 267024, Filed 13/12/68, Published 6/08/70  
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract  
No 2 G476 P)

Translation: The furnace for sintering metal ceramic products contains a heating chamber, heater, and loading and unloading devices. In order to increase productivity, the furnace is equipped with rotating disks located along the height of the circular heating chamber and connected by channels through which the products being sintered pass.

1/1

Magnesium

USSR

UDC 669.721

ANOSOV, V. F. and GUL'DIN, I. T.

"Fusibility and Electric Conductivity of Electrolytes for Refining Magnesium"

Moscow, Tsvetnyye metally, No 2, Feb 72, pp 42-43

Abstract: The study on the fusibility and electric conductivity of electrolytes for refining magnesium involved two systems of electrolytes comprising (wt. %) 33-53 NaCl, 22-33 KCl, 11-17  $MgCl_2$ , 8-12  $BaCl_2$ , 2-6 LiF, 2  $CaF_2$  for the first system and 32-50 NaCl, 21-32 KCl, 11-17  $MgCl_2$ , 8-12  $BaCl_2$ , 2-6 LiCl, 1  $CaF_2$  for the second system. The optimum electrolyte compositions with liquidus temperatures within 600-650°C show maximum specific electric conductivity from 2.65 to 2.93  $ohm^{-1}.cm^{-1}$  for system I and from 2.41 to 2.61  $ohm^{-1}.cm^{-1}$  for system II. It was found that 6% (wt.) lithium fluoride and chloride additions increase the specific conductivity of the compositions under study by 20 and 15%, respectively, as compared to identical systems without lithium salt addition. The increment of specific conductivity per 1°C for systems I and II is 0.00355 and 0.0032 ( $ohm^{-1}.cm^{-1}$ ) deg, respectively. (1 table, 9 bibliographic references)

1/1

USSR

UDC 543.52:546.791+546.841

ANOSOV, V. V., GAVRILOV, N. I., SMELKOVA, T. P.

"Simultaneous Radiometric Determination of Uranium and Thorium in Sulfate Solutions"

Moscow, Atomnaya Energiya, Vol 31, No 6, Dec 71, pp 633-635

Abstract: A method is developed for simultaneous determination of uranium and thorium in sulfate solutions by gamma spectrometric measurement without complicated chemical processing of the specimens. The standard for gamma-emission by uranium is a solution of uranyl nitrate in weak hydrochloric acid, and the thorium standard is prepared by dissolving thorium in sulfuric acid. The sensitivity threshold for 100-cc specimens with a measurement time of 10 minutes in each spectrometer channel is 0.015 g/l for uranium, and 0.01 g/l for thorium when the measurements are made in the 93 and 238 keV regions of the gamma spectrum, and 0.04 g/l for uranium and 0.01 g/l for thorium when measurements are made in the

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USSR

ANOSOV, V. V., et al., Atomnaya Energiya, No 6, Dec 71, pp 633-635

185 and 238 keV regions. The divergence between radiometric and chemical analysis of uranium and thorium for specimens with a uranium content of 0.1-1.4 g/l and thorium of 0.08-0.5 g/l is no more than  $\pm 10\%$  when radioactivity is measured in the 93 and 238 regions of the spectrum. The results of radiometric determination are not affected by the presence of cerium, rare earths or other elements which complicate chemical analysis. Radiometric determination with a single-channel analyzer is approximately four times as productive and considerably less expensive when compared with chemical determination. One figure, one table, bibliography of three titles.

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USSR

UDC 620.197.2

ANOSOVA, G. X., RUDOL, V. M., and LEVIN, A. I.

"Corrosion of Steel and the Effect of Certain Inhibitors When Applying Alternating Current"

Moscow, Mashinist Metallurg, Vol 6, No 6, Nov-Dec 70, pp 703-704

Abstract: This article contains a discussion of the effect of inhibitors on the corrosion properties of St.3 steel when an alternating current is applied. Graphs are presented showing the corrosion rate and the tangent of the phase shift angle as functions of the concentration of inhibitors for  $\text{NaC}_2\text{H}_3\text{O}_2$ ,  $\text{Na}_3\text{PO}_4$ , and  $\text{K}_2\text{Cr}_2\text{O}_7$ , at a frequency of  $f = 500$  hertz, with a sinusoidal current density of 30 milliamperes/cm<sup>2</sup> and a corrosion test time of 7.5 hours. It is pointed out that the retarding of electrocorrosion when applying an alternating current can be considered the result of retarding the anodic reaction of solution of the metal and increasing the proportion of the capacitive current. Insignificant additions of the chemical inhibitors to the electrolyte lead to retarding of the corrosion process. However, the protective effect of  $\text{Na}_3\text{PO}_4$  drops from 94.7% to 62.3% on application

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USSR

ANOSOVA, G. M., et al., *Soshehita Metallov*, Vol 6, No 6, Nov-Dec 70, pp 703-704  
of an alternating current. The protective capacity of the investigated inhibitors compares as follows:  $K_2Cr_2O_7 > Na_3PO_4 > NaO_2H_2O_2$ . From the experiments formed the conclusion is drawn that the effect of inhibitors during electrocorrosion of steel is exhibited in two ways: directly by retarding the anodic solution rate and indirectly by increasing the proportion of the nonFaraday current.

2/2

1/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ELIMINATION OF QUACK GRASS BEFORE THE PLANTING OF STRAWBERRIES -U-  
AUTHOR--ANFALOV, V.A.  
COUNTRY OF INFO--USSR A  
SOURCE--KH-IM. SEL. KHOZ. 1970, 8(3), 202-4  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--AGRICULTURE CROP, HERBICIDE, DIESEL FUEL  
  
CCNTRCL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY RELL/FRAME--3001/0515 STLP NO--UR/0394/70/008/003/0202/0204  
CIRC ACCESSION NO--AP0126263  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126263

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALMOST COMPLETE QUACK GRASS CONTROL BEFORE PLANTING STRAWBERRIES WAS OBTAINED WITH DOUBLE SOIL DISKING FOLLOWED BY INCORPORATION OF DALAPON (I) (20 KG-HA) OR NA TCA (III) (32 KG-HA). THE MIXTS. OF I OR II WITH ATRAZINE (III) (10 KG-HA) OR EPTAM (IV) (20 KG-HA) GAVE COMPLETE CONTROL BUT THOSE WITH SIMAZINE OR PROMETRYNE (BOTH AT 10 KG-HA) WERE LESS EFFECTIVE. FOR II, THE SPLIT APPLICATION (AT DISKING AND 10 DAYS LATER WHEN QUACK GRASS WAS 12-15 CM HIGH) IS RECOMMENDED. ADDN. OF DIESEL OIL INCREASED THE EFFECTIVENESS OF II. THE HERBICIDES WERE LESS EFFECTIVE WHEN APPLIED AS SPRAYS (WITHOUT DISKING) ON THE 12-15 CM HIGH QUACK GRASS. THE PLOTS TREATED WITH I AND II MAY BE PLANTED WITH STRAWBERRIES AFTER 3 MONTHS, THOSE TREATED WITH I OR II PLUS IV AFTER 5 MONTHS, AND THOSE WITH THE MIXTS. CONTG. III AFTER A YEAR. I, II, AND THEIR MIXTS. WITH III OR IV DID NOT AFFECT THE N FORM CONTENTS AND PH OF SOIL. FACILITY: VSES. NAUCH.-ISSLED. INST. SADOVOD. IM. MICHURINA, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--HIGH ENERGY SCATTERING MODEL WITH A VIOLATION OF THE POMERANCHUK  
THEOREM -U-  
AUTHOR-(04)-ANSELM, A.A., DANILOV, G.S., DYATLOV, I.T., LEVIN, YE.M.  
COUNTRY OF INFO--USSR  
SOURCE--YAD. FIZ. 1970, 11(4), 896-901  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--PARTICLE INTERACTION, ANTIPARTICLE, INTEGRAL CROSS SECTION,  
NUCLEAR MODEL, SCATTERING CROSS SECTION, ENERGY SPECTRUM, HIGH ENERGY  
PARTICLE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3007/1000 STEP NO--UR/0367/70/011/004/0896/0901  
CIRC ACCESSION NO--AP0135427  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136427

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXAMPLES ARE PRESENTED FOR THE POSSIBLE VIOLATION OF THE THEORY OF THE EQUALITY OF THE TOTAL CROSS SECTION OF PARTICLE AND ANTIPARTICLE INTERACTIONS (I. YA. POMERANCHUK, 1958) IN MODELS BASED ON THE LOGARITHMIC DEPENDENCE OF THE INCREASE IN THE INTERACTION RADIUS WITH THE INCREASING ENERGY. THE EXAMPLES SATISFIED THE GENERAL PRINCIPLES OF THIS THEORY, I.E. THE ANALYTICITY, THE CROSSING SYMMETRY, AND UNITARITY. THE DIFFRACTIONAL MODELS WITH THE S CHANNEL PARTIAL WAVE AMPLITUDE EQUAL SIMILAR TO  $1 - \ln s$  AND THAT WITH THE TOTAL ABSORPTION AND CROSS SECTION  $\sigma_{\text{TOT}}$  SIMILAR TO  $\ln^2 s$  ARE DISCUSSED IN DETAIL. FACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

1111 ACCIE IIA

USSR

UDC 669.046.5

ANSHELES, I. I., FEDOSEYEV, V. V., OYSK, G. N., YEGOROV, A. V., SOROKIN, S. P., TYURIN, Ye. I., DANILIN, V. I., SELIVANOV, V. M., SIVKOV, S. S., ZYRYANOV, Yu. Ye., and BALDAYEV, B. Ya.

"Use of Electromagnetic Stirring in Vacuum Melting of Steel in a Ladle"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISI), (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys), Izd-vo "Metallurgiya," No 61, 1970, pp 222-227

Translation of Abstract: Brief technical characteristics are given of the electromagnetic stirring of steel in a ladle. Data are presented on the effect of electromagnetic metal stirring on the uniform distribution of added deoxidizers and alloying elements, and also on the significant increase in the duration of vacuum smelting. A new production technology for the ShKh15 steel is presented in which complete deoxidation and alloying is conducted in the ladle at the end of vacuum smelting. The suggested method is theoretically substantiated. The results of the first experimental melts are presented. 3 tables.

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Acc. Nr:

**AT0102945**

Abstracting Service:

CHEMICAL ABST. 6-70

Ref. Code:

**UR0148**

114174b Thermodynamic bases for controlling the deoxidizing capacity of carbon during in vacuo alloying of steel. Ferlossev, V. V.; Zyrvanov, Yu. E.; Ansheles, L. I.; Oiks, G. N. (Mosk. Inst. Stali Splavov, Moscow, USSR). Izv. Vyssh. Ucheb. Zaved., Chern. Met. 1970, 13(1), 43-7 (Russ). It was shown exptl. that electromagnetic mixing provided thorough homogenization of the added metals, which increased the time of the vacuum treatment of the steel, utilized more completely the deoxidizing capacity of C, and shortened the time the steel was under vacuum. The thermodynamic anal. of the overall reaction for the oxidn. of C and Cr during the melting of the steel in vacuo is given for various alloys (1% C, 1, 5% Cr-steel ShKh15; 0.3% C, 1% Cr-steel 30KhGSA and other Fe-C-O and Fe-C-O-Cr systems). The equil. capacity of the O in dependence upon the temp. and CO partial pressure is given. It follows from the results that it is better to change the present technol. of steel alloying.

J. Stejskal J. vxc

REEL/FRAME  
**19861011**



USSR

UDC 621.90

TYVES, L. I., Candidate of Technical Sciences and ANSHIN, S. S., Graduate Student Moscow Aviation Institute

"Qualitative Evaluation of Manipulators"

Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 11, 1971, pp 41-45.

ABSTRACT: Criteria are suggested for the accuracy of reproduction of positions of the master mechanism by the actuating mechanism of a copying manipulator, as well as the quality of sensation of forces by the feedback tracking systems. An example is presented for calculation of these criteria for a planar model of a copying manipulator kinematically similar to the human hand. The "sensing error" used to evaluate the operation of the manipulator combines the errors in transmission of force and torque.

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USSR

UDC 621.385.51:535.215.6

ANSHON, A.V., KARPOVICH, I.A., PERSHIN, YU.M.

"Effect Of Internal Shunting Resistance On The Characteristics Of Film Photo-detectors With A CdS--Cu<sub>2</sub>S Heterojunction"

Elektron. tekhnika. Nauchno-tekhn.sb. Elektronoluch. i Fotoelektr. pribory  
(Electronic Technology. Scientific-Technical Collection. Electron Beam and Photoelectric Devices), 1970, Issue 2(16), pp 32-33 (From Ruk--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 43529)

Translation: It is shown that the unusually small response of film photo-detectors with a CdS--Cu<sub>2</sub>S heterojunction in an open circuit regime at low illumination ( $E < 100$  lux) is connected with the presence of shunting transition resistance. The dependences are obtained of the shunt resistance on the temperature and illumination, from which it follows that the shunt consists of two series connected resistances, one of which has metallic characteristics and the other semiconductor. As a result of consideration of the construction of photodetectors, a conclusion is given on the nature of the constituents of the shunt. 3 ill. 2 ref. Author's abstract.

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Refractory Materials

USSR

UDC 546.623'21+546.74'21):541.123.2

GAVRISH, A. M., ZOZ, YE. I., ANSIMOVA, T. A., PITAK, N. V., and KARYAKIN, L. I., Ukrainian Scientific Research Institute of Refractory Materials

"Processes Taking Place in the  $\text{Al}_2\text{O}_3$ -NiO System During Heating in Oxidizing and Reducing Media"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8, No 6, Jun 72, pp 1175-1177

Abstract: An investigation was made of the change of phase composition of the carrier during heating in oxidizing and reducing media in the presence of a nickel catalyst. The specimens were prepared from the principal components of the carrier, electrocorundum (with 98.6%  $\text{Al}_2\text{O}_3$ , grain size  $< 50 \mu$ ), technical alumina (98.6%  $\text{Al}_2\text{O}_3$  grain size  $< 50 \mu$ ), and nickel nitrate ( $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ ). The corundum and alumina specimens had additions of 1, 10, 25, and 50% nickel nitrate. With an increasing concentration of nickel nitrate, there are only weak lines of spinel at  $1500^\circ\text{C}$ ; at 10% the spinel develops at  $1200^\circ\text{C}$ , and at 25% it develops at  $900^\circ\text{C}$ . According to findings of other authors, the development of spinel was observed at  $700^\circ\text{C}$  and up to  $1500^\circ\text{C}$ . The behavior of corundum and alumina specimens in the process of

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USSR

CAVRISH, A. M., et al., Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 8, No 6, Jun 72, pp 1175-1177

temperature increase up to 1500°C and during holding in air is discussed and compared with data of other authors. One table, eight bibliographic references.

2/2

- 42 -

1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--PACKING COMPOUND FOR THE HEARTS OF HEATING FORNAGES -U-

AUTHOR--(02)-PITAR, N.V., ANDSIMOVA, T.A.

COUNTRY OF INFO--USSR

SOURCE--DOKLADY 1970, 35(5), 32-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MICH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--INDUSTRIAL FURNACE, CORUNDUM, REFRACTORY MATERIAL, PHOSPHORIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0630

STEP NO--UR/0151770/335/00070032/0010

CITE ACCESSION--UNCLASSIFIED

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--2011/07/0

CIRC ACCESSION NO--AP01:4372

ABSTRACT/EXTRACT--(U) OP-0- ABSTRACT. BY USE OF SINTERED ALUMINUM AND  
ELEC. COPOLYMER, COMPS. WERE WORKED OUT FOR THE PACKING COMPO. BASED ON  
ORTHOPHOSPHORIC ACID, WHICH ARE RECOMMENDED FOR THE FILLING OF THE  
BOTTOMS OF HEATING PACKAGES. THE SAMPLES AND THE ARTICLES PREPD. FROM  
THESE PACKING COMPS. BY PRESSING AND BY PNEUMORAMMING ARE CHARACTERIZED  
BY GOOD PROPERTIES. FACILITY: GKR. NAUCH. ISSUED. INST.  
OGNEUPOL., KHARKOV, USSR.

UNCLASSIFIED

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

<sup>10</sup> This sentence is a variation of the sentence in the title of the book of G. E. Hughes, *On the Basis of Ethics* (1968).

[illegible]

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1/2 030 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ON MORPHOLOGICAL CHANGES BETWEEN CENTRAL STRUCTURES OF THE AUDITORY  
ANALYZER IN PROLONGED INTENSIVE EFFECT OF NOISE -U-  
AUTHOR--(03)-STRAKHOV, A.B., KORSHUNOVA, V.I., ANTAKOVA, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49,  
NR 6, PP 95-97  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--WHITE NOISE, AUDITORY SYSTEM, NEURON, MORPHOLOGY, CELL  
PHYSIOLOGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FKAME--3004/0570 STEP NO--UR/0219/70/049/006/0095/0097  
CIRC ACCESSION NO--AP0131193  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131193

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTAL CONDITIONS THE AUTHORS STUDIED THE EFFECT OF PROLONGED NOISE ON THE DEVELOPMENT OF MORPHOLOGICAL CHANGES IN NEURONS OF DIFFERENT REGIONS OF THE AUDITORY ANALYZER IN ALBINO RATS. MANY DAY EFFECT OF NOISE LEADS TO THE DEVELOPMENT OF CHANGES IN THE NISSL'S SUBSTANCE, NUCLEI AND NUCLEOLI OF NERVE CELLS. IN EXPOSURES LASTING FROM 1 TO 7 DAYS THE MOST SIGNIFICANT ALTERATIONS WERE REVEALED IN THE ACOUSTIC REGIONS OF THE CORTEX OF GREAT HEMISPHERES. IN LARGE TERMS OF THE EFFECT (15-28 DAYS) CORTICAL CHANGES GRADUALLY DIMINISHED, WHEREAS IN THE SUBCORTICAL FORMATIONS OF THE BRAIN THEY GRADUALLY INTENSIFIED. IT IS ASSUMED THAT PROTRACTED EFFECT OF INTENSIVE NOISE LEADS TO BLOCK ON THE SUBCORTICAL LEVEL OF AFFERENT IMPULSATION THIS MAKING IT POSSIBLE TO CARRY OUT RESTORATIVE PROCESSES IN THE CORTICAL LAYER OF THE AUDITORY ANALYZER. FACILITY: GORKY MEDICAL INSTITUTE.

UNCLASSIFIED

USSR

USS-018.232.7-02:329.104]-072

STRANOV, A. B., KORENKOV, V. I., and ANIKOVA, N. V., Chair of General Physiology,  
Gor'kiy Medical Institute named S. A. Kirov

"Morphological Changes in the Central Structures of the Auditory Analysis After  
Prolonged Exposure to Noise"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 6, 1976, pp 78-79

Abstract: Several groups of rats were continuously exposed to noise (1500 to 3000 Hz) for periods of up to 23 days. Significant changes were noted in the nuclei bodies (different forms of chromatolysis - perinuclear, peripheral, total), nuclei, (peripheral location, degeneration, pyknosis), and nucleoli two or three present in many cells. The intensity of the changes varied with the part of the brain and the duration of exposure. After 1 to 7 days they were most pronounced in the acoustic cortex, less so in the stem structures. After 15 to 23 days, the cortical changes were more diffuse, but in the subcortical formations - corpora quadrigemina, corpus geniculatum mediale, and area vestibularis - the changes gradually intensified.

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USSR

UDC:541.113

ANTANOVICH, A. A., PLOTNIKOV, M. A., SAVEL'YEV, G. Ya., Moscow

"Area of Applicability of Virial Equation of State With Various Numbers of Virial Coefficients"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 267-272

Abstract: The most general form of the equation of state suitable for use over a broad range of gas temperatures is the virial form of the equation. Some results are presented in this article from numerical investigation of the area of applicability of this equation using various numbers of terms in the virial series. These results can be used in the practice of thermodynamic calculations, since in many cases definition of the optimal number of terms in the series depending on the required calculation accuracy is important both from the standpoint of decreasing error resulting from using insufficient numbers of terms and from the standpoint of decreasing the volume of computation by reducing the number of terms as greatly as possible. The investigation is performed for nitrogen in the temperature

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USSR

UDC:541.113

ANTANOVICH, A. A., PLOTNIKOV, M. A., SAVEL'YEV, G. Ya., Novosibirsk,  
Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 267-272

range from 300-3000°K. The results indicate that in the 1000-3000°K range, the use of five virial coefficients is quite sufficient for practical application of the equation at pressures up to several tens of kilobars. At temperatures over 3000°K, the pressure at which the formula can be used exceeds 100 Kbar.

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USSR

UDC 615.916:546

ANTBAYEV, T. KH.

"Functional State of Rat Kidneys Under the Chronic Effect of Hydrogen Fluoride"

Tr. NII krayev. patol. KazSSR (Works of the Scientific Research Institute of Marginal Pathology of the Kazakh SSSR), 1972, No 23, pp 98-100 (from RZh--Farmakologiya, Khimioterapevticheskiye Sredstva. Toksikologiya, No 3, Mar 73, Abstract No 3.54.684)

Translation: A rat was subjected to daily inhalation poisoning with HF for six hours in a dosage equal to the MPC (first group) or 0.5 MPC (second group). After one month the increase in weight of the animals of the first group was 15 percent than in the control; in the blood a trend was noted toward a decrease in Hb and the number of erythrocytes, lymphocytopenia and neutrophilises. The diurnal diuresis was reduced from 11.7 to 7.6 ml, the proportion of urea increased from 0.964 to 1.088, the amount of albumen in the urea increased from 13.6 to 37.2 mg%, and in the blood it dropped from 8.71 to 6.99 g%, the creatinin concentration in the urea increased sharply. After three months, in the blood of the animals in the second group, a reduction in Hb and the

USSR

AYTBAYEV, T. KH, Tr. NII krayev. patol. KazSSR, 1972, No 23,  
pp 98-100

number of erythrocytes was noted, and in the first group the Hb was significantly reduced without any changes in the blood formula. The diuresis of the animals in the second group dropped to 6.4 mℓ, the amount of albumen and creatinin increased to 2.9 and 5.58 mg%; for the animals in the first group the diuresis and the urea composition were normalized, and the weight coefficient of the kidneys increased. After six months the weight coefficient of the kidneys of the animals in the first group doubled, the albumen concentration and creatinin concentration in the urea were increased; the alterations in the animals of the second group were analogous, but less expressed.

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USSR

ANTIK, A. P., ARSHAVSKIY, V. V., and ROZENSHTEYN, G. Sh., Moscow Scientific Research Institute of Psychiatry, Ministry of Public Health, RSFSR

""II. The Role of Motivation Centers in the Control of Convulsive Brain Activity"

Moscow, Biofizika, Vol 17, No 4, 1972, pp 681-686

Abstract: The second part of an experimental study of a control model of convulsive brain activity, conducted in 1968-1969, is presented. The first part was published in the previous issue of this journal. The present article contains experimental material obtained from cats, rabbits, and rats, and from experimental corazole and audiogenic models of convulsive activity. This material confirms the basic results of a qualitative model of epilepsy; these can be reduced to the following. Epileptic activity originates during a delay in "media reversion," when high-amplitude potentials appear in the cortex; these are signals announcing the approach of the system to a "dangerous" state. This state arises because the organism receives an additional flow of impulses into the "negative" motivation centers, and a decrease in the flow of impulses into the "positive" centers. Electrical stimulation of the "negative" zones of the hypothalamus brings about the development and

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USSR

ANTI, A. P., et al., Biofizika, Vol 17, No 4, 1972, pp 681-686

amplification of convulsive discharges in the cortex. The suppression of the convulsive activity in the cortex is linked to the creation of an additional flow of impulses in the "positive" motivation centers and a weakening of pulsation in the "negative" centers. Stimulation of "positive" zones of the hypothalamus brings about the weakening and cessation of convulsive activity in the cortex.

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1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--RESISTANCE OF HEATING SURFACES OF MAZUT BOILERS TO VANADIUM  
CORROSION -U-  
AUTHOR--ANTIKAYN, P.A., VASYUCHKOVA, K.I., GLEBOV, V.P. *A*  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, ELEKTRICHESKIYE STANTSII, NR 4, 1970, PP 34-38  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS  
TOPIC TAGS--STEAM SUPERHEATER, VANADIUM CORROSION, BIBLIOGRAPHY,  
AUSTENITIC STEEL, STEAM BOILER, PETROLEUM RESIDUE/(U)PK41 MAZUT BOILER  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/1411 STEP NO--UR/0104/70/000/004/0034/0033  
CIRC ACCESSION NO--AP0104725  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104725

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE QUOTED OF LABORATORY INVESTIGATIONS OF THE SPECIMENS OF STEAM SUPERHEATER PIPES FROM DIFFERENT STEELS OF PEARLITIC AND AUSTENITIC CLASSES. THE SPECIMENS WERE TESTED IN AN ARTIFICIAL MEDIUM CONTAINING 87PERCENT VANADIUM DIOXIDE AND IN DEPOSITS REMOVED FROM PIPES OF A CONVECTIVE STEAM SUPERHEATER OF THE PK-41 GAZ MAZUT BOILER. RECOMMENDATIONS ARE GIVEN FOR THE USE OF VARIOUS STEEL BRANDS.

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1/2 033 UNCLASSIFIED PROCESSING DATE- 09OCT70  
TITLE--THE STABILITY OF WELDED PIPE CONNECTIONS OF HEATING SURFACES IN THE  
CASE OF ACID RINSES BY A AMMONIUM MONOCITRATE AND TRILON B -U-  
AUTHOR--(03)-ANTIKAYN, P.A., NOVI, YU.U., TARATUTA, V.A.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, ENERGO Mashinostroyeniye, NO 3, 1970, PP 31-34

DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--PIPE WELDING, STEAM BOILER, METAL CLEANING, HYDROCHLORIC ACID,  
RESEARCH FACILITY, ALLOY DESIGNATION, STAINLESS STEEL, LOW ALLOY STEEL,  
CARBON STEEL, COMPLEX COMPOUND, THERMAL STABILITY, METALLOGRAPHY/(U)ST20  
CARBON STEEL, (U)12KH14F LOW ALLOY STEEL, (U)KH18N12T STAINLESS STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1993/0879

STEP NO--UR/0114/70/0007/003/0031/0034

CIRC ACCESSION NO--AP0113727

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113727

ABSTRACT/EXTRACT--(U) 02-0- ABSTRACT. IN THE USSR AND ABROAD, FOR THE REMOVAL OF DEPOSITS FORMED ON THE HEATING SURFACES OF BOILERS, SOLUTIONS OF COMPLEX FORMING REAGENTS ARE USED. DATA UPON THE EFFECT OF THESE SOLUTIONS, IN PARTICULAR AMMONIUM MONOCITRATE AND TRILON B, UPON THE STABILITY OF THE WELDED PIPE JOINTS OF HEATING SURFACES ARE PRACTICALLY ABSENT. IT IS MERELY KNOWN THAT WHEN CHEMICAL CLEANINGS ARE CARRIED OUT PRIOR TO THE START OF OPERATIONS, THERE ARE PRACTICALLY NO SPECIFIC DIFFICULTIES CONNECTED WITH IMPAIRMENT OF THE DENSITY AT THE WELDING SITES. NEVERTHELESS, AS HAS BEEN SHOWN BY STUDIES OF THE ALL-UNION INSTITUTE OF HEAT ENGINEERING IMENI F. E. DZERZHINSKIY, WHEN THE PIPES ARE RINSED BY A WEAK SOLUTION OF INHIBITED HYDROCHLORIC ACID THE WELDED SEAMS ARE THE MOST VULNERABLE POINTS OF THE WATER AND STEAM CHANNEL. IN THIS CONNECTION, A STUDY WAS CARRIED OUT AT THE MOSCOW BRANCH OF THE CENTRAL SCIENTIFIC RESEARCH, PLANNING ADD DESIGN BOILER AND TURBINE INSTITUTE, WHICH HAS MADE IT POSSIBLE TO CLEAR UP THE QUESTION CONCERNING THE BEHAVIOR OF WELDED PIPE CONNECTIONS UNDER CONDITIONS OF REPEATED CLEANING OF BOILERS WITH THE USE OF COMPLEX FORMING REAGENTS. INCLUDED IN THE INVESTIGATION WERE X RAY, MICROSTRUCTURE, AND METALLOGRAPHIC TESTS. AS A RESULT OF THE WORK PERFORMED, IT MAY BE CONSIDERED AS ESTABLISHED THAT WELDED JOINTS OF STEELS 20, 12KH1MF AND KH18N12T, MADE BY CONTACT, ELECTRIC ARC, AND GAS WELDING, DO NOT IMPOSE ANY RESTRICTIONS ON THE CONDUCT OF OPERATIONAL CHEMICAL CLEANINGS OF THE UNIFLOW BOILERS WITH THE USE OF COMPLEX FORMING REAGENTS (AMMONIUM MONOCITRATE MIXED WITH TRILON B).

UNCLASSIFIED

USSR

SUDAKOV, K. V., ANTIMONYI, G. D., First Moscow Medical Institute imeni I. M. Sechenov

"Central Mechanisms of the Effect of Electromagnetic Fields"

Moscow, Uspekhi Fiziologicheskikh Nauk, Vol 4, No 2, Apr/May/Jun 73, pp 101-135

Abstract: A study was made of the presently known published data pertaining to the effect of electric magnetic fields on the central nervous system. The study included various aspects of the problem of the role of natural electromagnetic fields in the evolutionary processes and their effect on animals and man, the participation of electromagnetic fields in the activity of the central nervous system, the perception of electromagnetic fields by animate organisms, the effect of these fields on the behavior of animals and man and also the modern concepts of the neurophysiological mechanisms of the effect of electromagnetic fields. New experimental data are presented indicating the possibility of selective sensitivity of the limbic structures to the effect of electromagnetic waves. A study was made of the effect of electromagnetic fields on purposeful behavioral reactions of different biological quality from the point of view of the concept of the functional system of Academician P. K. Anokhin. Some

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SUDAKOV, K. V. and ANTIMONIY, G. D., Uspekhi Fiziologicheskikh Nauk, Vol 4, No 2, Apr/May/Jun 73, pp 101-135

recordings are presented showing the variations in electrical activity of the cortex and subcortical formations in various stages of the effect of electromagnetic fields.

The hypothesis is stated according to which an electromagnetic field, which has a selective effect on the limbic structure of the brain, primarily disturbs the mechanisms of the formation of negative emotional states. The analogous effect of an electric current on negative emotional reactions was observed in experiments with electonarcosis by Yu. B. Abramov [Kliniko-fiziologicheskiye issledovaniya po problemam elektrosna i elektroanestezii (elektronarkoza), Moscow, Meditsina, 3-5, 1969]. The selective effect of the electromagnetic fields on the emotional reactions of a negative nature is apparently a cause of disturbance of the afferent synthesis apparatus and the acceptor of the results of the effect. The defensive functional system was disturbed in experiments involving two reactions of different biological quality. The systems approach to the study of the given problem is considered highly prospective.

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USSR

UDC 546.719-386:542.61

BOL'SHAKOV, K. A., Corresponding Member Academy of Sciences USSR; SINITSYN, N. M., TRAVKIN, V. F., and ANTISYONOVA, L. N., Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov, Moscow

"A Study of the Interaction of Hexahalorhenates (IV) with tri-n-Butylphosphine Oxide in Extraction Processes"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 3, 1971, pp 614-617

Abstract: The extraction with  $\text{Bu}_3\text{PO}$  in  $\text{CCl}_4$  of  $[\text{ReCl}_6]^-$  and  $[\text{ReBr}_6]^-$  from 0.002 M solutions of  $(\text{NH}_4)_2\text{ReCl}_6$  and  $(\text{NH}_4)_2\text{ReBr}_6$  in HCl was studied at equal volumes of the aqueous and organic phase. The maximum degree of extraction was at an HCl concentration of 3-4 M. With increasing concentrations of  $\text{Bu}_3\text{PO}$  in  $\text{CCl}_4$  from 0.01 to 0.05 M, the coefficient  $D_{\text{Re}}$  of the distribution of Re between the organic and aqueous phase at 1 M HCl increased from 1.5 to 150. This indicated that more than 99% of the Re could be extracted in one operation.  $D_{\text{Re}}$  was higher for the Br than Cl complex. In the extraction of the Cl complex, the composition of the compound extracted was  $(\text{Bu}_3\text{PO})_2(\text{H}_2\text{O})_2/\text{ReBr}_6^-$  (II) were synthesized. I and II, a light-green and yellow-brown compound, respectively, dissolved easily in polar organic solvents (alcohols,

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BOL'SHAKOV, K. A., et al, Doklady Akademii Nauk SSSR, Vol 193, No 3, 1971, pp 614-617

acetone,  $\text{HCCl}_3$ ) and less readily in non-polar solvents (benzene, hexane,  $\text{CCl}_4$ ). These compounds were stable in the air up to  $230-40^\circ$ . The molar electric conductivity of I and II in solutions of various concentrations in  $\text{MeOH}$ ,  $\text{EtOH}$ , and  $\text{BuOH}$  was determined. It increased in the order  $\text{BuOH} < \text{EtOH} < \text{MeOH}$ , but there was no complete dissociation into three solvated ions even in  $\text{MeOH}$ . Solutions of I in benzene did not conduct. The electronic spectra of I and II corresponded to those of the organic phases obtained on extraction of the ammonium hexahalorhenates with  $\text{Bu}_3\text{PO} + \text{HCCl}_3$ . In the IR spectra of I and II, the absorption band of valency oscillations of  $\text{P}=\text{O}$  was displaced toward longer wavelengths vs. that for  $\text{Bu}_3\text{PO}$  because of a redistribution of electron density associated with the formation of the coordination compounds. The results obtained and data from the literature indicated that the following equilibrium is established during the extraction:  $3 \text{Bu}_3\text{PO}_{\text{org}} + (\text{NH}_4)_2/\text{ReHal}_6/\text{aq} + 2\text{HCl}_{\text{aq}} + (x+2)\text{H}_2\text{O} \rightleftharpoons \{(\text{Bu}_3\text{PO})_3 \cdot (\text{H}_2\text{O})_2(\text{H}_2\text{O})_x \cdot / \text{ReHal}_6/\}_{\text{org}} + 2\text{NH}_4\text{Cl}$ .

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USSR

UDC 621.373.826:621.317

BARUMENKO, V. M., ANTIPENKO, A. P.

"Heterodyne Optical Spectral Analyzer"

V sb. Ispol'z. optich. kvant. generaterov v sovrem. tekhn. i med. Ch. 2-3  
(Utilization of Lasers in Modern Engineering and Medicine. Parts 2-3--collection of works), Leningrad, 1971, pp 8-11 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1B627)

Translation: In order to build a heterodyne optical spectral analyzer it was necessary to solve the following problems: 1) obtain single-frequency generation of a heterodyne laser; 2) tune the single-frequency laser in the band of the investigated spectrum; 3) shift the heterodyne frequency by the amount for which the spectra of the signal and mirror channels do not overlap. The experiment confirms the possibility of using a heterodyne spectral analyzer to study the spectrum of an He-Ne laser on a 0.6328 micron wavelength. A single-frequency He-Ne laser with mode selection by means of the Michelson interferometer was used as the heterodyne. The heterodyne frequency varied linearly on supplying a sawtooth voltage from the scanning generator to the piezoelement of the selector; the frequency shift of the signal and the heterodyne was carried out by tuning one of the lasers by a magnetic field. There is one illustration and a 3-entry bibliography.

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USSR

UDC 621.396.62.029.7

BAKUMENKO, V. M., ~~ANTIPENKO, A. P.~~

"Single-Band Optical Mixer"

Moscow, Radiotekhnika i elektronika, Vol XVII, No 2, 1972, pp 340-344

Abstract: A study was made of a scheme for a single-band optical mixer. An experiment was performed to determine the degree of suppression of the image frequency in which a laser operating in the two-frequency mode was used as the signal source, and the heterodyne was a single-frequency tunable laser. The suppression of the image frequency obtained was about 10 decibels. The possibility of using a single-band mixer in the optical range was confirmed. The degree of suppression of the image frequency can be improved by using a heterodyne with high monochromaticity. The mixer can be used in an optical heterodyne spectroanalyzer and also in superheterodyne receivers where suppression of the image frequency is desirable.

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USSR

YERMOLAYEV, V. L.; ANTIPENKO, B. M.

"The Role of a Solvent in Radiationless Transfer of Energy between Rare Earth Ions"

Leningrad, Optika i Spektroskopiya; January, 1971; pp 75-80

ABSTRACT: The constants of the rate of radiationless transfer of energy ( $k_t$ ) from  $Tb^{3+}$  ions (donor) to  $Nd^{3+}$ ,  $Ho^{3+}$ , and  $Eu^{3+}$  ions (acceptors) in 22 different solvents were determined. It was shown that the changes  $k_t$  (approximately two orders of magnitude) are not caused by variations in the viscosity of the solvent but are connected with the chemical properties of its molecules. The following factors contribute to the radiationless transfer of energy: (1) a low donor number and (2) a low dielectric constant of the solvent. The role of the steric factor, not taken into account in the donor number, is not important. A comparison of the dependence of  $k_t$  on the concentration of added acetate anions in water and ethyl alcohol was made.

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USSR

UDC 535.373.2

ANTIPENKO, B. M. and YERMOLAYEV, V. L.

"Effect of Anion Concentration Variation on Radiationless Energy Transfer Between Rare Earth Ions in Liquid Solutions"

Leningrad, Optika i Spektroskopiya, Vol 29, No 1, 1970, pp 90-92

Abstract: This is the second installment of a series begun by an article in this journal (28, p 931, 1970) in which the authors shows that an increase in the anion concentration of several salts  $\text{Cl}^-$ ,  $\text{SO}_4^{2-}$ ,  $\text{NO}_3^-$ , and  $\text{SCN}^-$  in a water solution of 293° K leads to a marked growth in the velocity constant of the radiationless energy transfer between the various rare earth ions. In the present paper, the authors find that there is still greater increase in the velocity constant between the rare earth ions with salts of aliphatic carboxylic acids (acetic, formic, and carbonic) present. Their method was to measure the quenching and the shortening of the attenuation time of the luminescence energy donor  $\text{Tb}^{3+}$  as functions of the ion concentration of the acceptor  $\text{Nd}^{3+}$ ,  $\text{Eu}^{3+}$ , and  $\text{Ho}^{3+}$  in the presence of various concentrations of potassium salts of carbonic acid. The luminescence intensity of  $\text{Tb}^{3+}$  and  $\text{Eu}^{3+}$  was measured on the MPF-2 spectrofluorometer of the Japanese Hitachi firm, and the attenuation

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USSR

ANTIPENKO, B. M., et al., Optika i Spektroskopiya, Vol 29, No 1, 1970, pp 90-92

time was measured with a device consisting of the pulse lamp ISSh-100 and the S1-4 oscillograph. They conclude with the comment that the dependence of the velocity constant on the anion concentration, which they discovered, can be used as a simple and sensitive method for studying the formation of complex rare earth ions in solution.

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ANTIPENKO, D.B.

STUDY OF CHOLESTEROL METABOLISM IN DOGS EXPOSED TO THREE-YEAR  
CHRONIC GAMMA IRRADIATION

/Article by D. B. Antipenko and A. A. Akumov; Moscow, Akademiya Voennoy Kosmicheskoy Biologii i Meditsiny (Current Problems in Space Biology and Medicine), Moscow, 1971, pp 12-14/

The literature contains information on the influence of chronic radiation on lipid metabolism. For example, with the irradiation of rats for a period of 14 months in a dose of 0.05 R/day there were substantial changes in lipid metabolism (V. V. Danatskaya, et al., 1961). Investigations of human subjects working with sources of ionizing radiation over a period of several years revealed that the blood cholesterol content in eight out of 37 cases was increased to 280 mg. (I. B. Kolesina, 1963). V. V. Danov, A. Danov, et al. (1969). In a study of 135 persons working for a period of seven years with sources of ionizing radiation (the annual irradiation dose was 100-600 mrad), noted changes in some indices of lipid metabolism.

It should be noted that information on the effect of chronic irradiation on cholesterol metabolism in the human and animal body is extremely limited and contradictory.

The purpose of this investigation was a determination of the effect of chronic irradiation over a period of three years on the cholesterol content in the serum of dogs.

The materials in this study constitute part of complex investigations for study of the biological effects in dogs subjected to irradiation simulating the probable radiation effect during prolonged space flights (D. B. Antipenko, et al., 1960).

ITALY

ANTIPENKO, E. S.

SOI JMS 53432  
17 JUN 71

UFG: 304,243,101

CHARACTERISTICS OF TRAINING METHOD OF SCIENTIFIC PERSONNEL

(E. S. Antipenko)  
Article by E. S. Antipenko, Moscow, *Sovetskoye Zdravokhraneniye*,  
Moscow, No. 1, 1970, pp. 26-29.

Scientific personnel are the ones mainly involved in organization of scientific research and in improving its productivity. The high level of their training, the firmness of their scientific and technological basis of research institutions, sufficient financing, complete and proper supply of information are all this constitutes the foundation on which scientific achievements are built.

In this connection, of special importance is the training of scientific workers, and first of all of the most qualified ones, namely doctors of technical sciences. While the ordinary type, the main one being of quite a long time in the classroom, for preparation, special purposes, have already been developed long ago for the training of engineers, scientists, or technicians, there are no standard or traditional forms of selection or system of training doctors of technical sciences.

It is difficult at the present time to find the training of scientific workers to be a task of the first importance in the selection of scientific personnel. At the same time, it is a task of very important nature. It is the task of the scientific and technical personnel, knowledge of modern scientific and technical sciences, and engineering.

It is necessary after the selection of the scientific personnel to determine the training of scientific workers for the age at which the research is conducted. The training of scientific workers is a task of very important nature. It is the task of the scientific and technical personnel, knowledge of modern scientific and technical sciences, and engineering. The training of scientific workers is a task of very important nature. It is the task of the scientific and technical personnel, knowledge of modern scientific and technical sciences, and engineering.



Foundry

USSR

UDC 669.187.25

KOCHO, V. S., IVANCHENKO, Yu. I., KOROBKO, I. M., SHEKHONTOV, O. A., MALIKOV, G. P., and ANTIPENKO, G. I., Kiev Polytechnical Institute; Zaporozhye Electro-Metallurgical Works (Dneprospetsstal')

"Determination of the Instant of the End of the Power Melting Period in a Steel-Melting Arc Furnace"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Chernaya Metallurgiya, No 11, 1970, pp 70-72

Abstract: The possibility of determining the instant at which the steel melting period ends is discussed. A computation method is presented which is based on solution of a derived function from experimental data on melting ball-bearing steel in an arc furnace of the Dneprospetsstal' plant. A schematic of the computer is included.

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AA0052654

ANTIPENKHO, I. A.

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,  
Derwent, /- 70

241851 SHAFT AND SEAL is reliable and provides  
a tight seal. It consists of a fixed  
chromium silicon steel ring 1, encased (3) rotation  
carbon ring 2 and an elastic gland 4 held on the  
shaft 5 by a sleeve 6. Crimped spring 7 fitted  
on the sleeve pushes the rotating clamp 8 and  
gland 4. The gland section represents a ring,  
neck 9, radiused portion 10 which projects by  
0.3 mm in front of the ring face and a cylindrical  
part 11. During the assembly, the air is forced  
out of the space 12 and the gland is sucked  
towards the ring 2.

9.6.67. as 1163033/25-27, CHUGAEV, N.G. et al.  
(2.9.69) Bul. 14/18.4.69. Class 47c, Int. Cl.  
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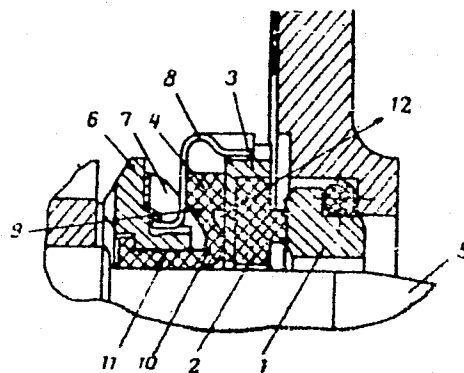
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AA0052654

Klimov, L. Ya.; Obukhov, N. Ya.; Lavrov, M. T.;  
Antipenko, I. N.; Severtsev, S. A.



19821393

Molecular Physics

USSR

UDC 535.373.2

ANTIPEKO, K. M., DMITRYUK, A. V., ZUBKOVA, V. S., KARAPETIAN, G. G., and  
MAK, A. A., Institute of Precision Mechanics and Optics

"Cooperative Processes in Activated Glasses"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 37, No 3, 1973,  
pp 466-469

Abstract: Cooperative phenomena were found and studied in glasses activated with Yb--Tb, Yb-Eu. It is shown that there are at least two mechanisms for anti-Stokes excitation of the  $Tb^{3+}$  and  $Eu^{3+}$  ions: fast (cooperative sensitized luminescence) and slow (combinational excitation). Some quantitative parameters of the cooperative processes were determined. A study was made of the functional dependence of the efficiency of the cooperative processes on excitation power and energy, glass structure and composition, temperature, and activator concentration ratio. It is shown that disorder of the structure of the glasses does not prevent the occurrence in them of cumulative processes such as cooperative sensitization and combinational excitation, the efficiency of the cumulative processes in the glasses being commensurable with the efficiency of two-photon absorption with the participation of the virtual level.

1/1

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SPECTROGRAPHIC ANALYSIS OF SLAG MELTS ON THE DFS10 QUANTOMETER  
USING VARIOUS LIGHT SOURCES -U-  
AUTHOR-(03)-NIKITINA, O.I., ANTIPENKO, L.L., KOLOMIYETS, L.P.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 175-6

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--SLAG, CHEMICAL ANALYSIS, SPECTROGRAPHIC ANALYSIS, ELECTRIC  
GENERATOR/(U)IG3 VOLTAGE GENERATOR, (U)DFS10 QUANTOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1996/1841

STEP NO--UR/0032/70/036/002/0175/0176

CIRC ACCESSION NO--AP0118805

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118805

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A LOW VOLTAGE SPARK (40 MUF, 500 MUH) WAS USED IN THE ANAL. OF SLAG MELTS AND THE RESULTS WERE COMPARED WITH THOSE OBTAINED BY A HIGH VOLTAGE GENERATOR IG-3 (0.01 MUF, 0.55 MUH). THE AT. LINES SI I 288.1, AL I 396.1, MG I 518.3, FE I 440.4 NM GAVE BETTER REPRODUCIBILITY BY USING THE ARC, WHILE CA II 325.8 AND 370.6, MN II 293.3 AND 482.3, MG II 280.2 WAS BETTER WITH THE LOW VOLTAGE SPARK. THE RESULTS CONFIRMED THE FEASIBILITY OF USING A LOW VOLTAGE SPARK FOR SLAG ANAL.

UNCLASSIFIED

Molecular Physics

USSR

ANTIPIN, A. A., KURKIN, I. N., SHLENKIN, V. I., Kazan' State University  
imeni V. I. Ul'yancv-Lenin

"Spin-Lattice Relaxation of  $\text{Sm}^{3+}$  and  $\text{Ho}^{3+}$  Ions in Single Crystals of  
Scheelite Structure"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 9, Sept, 71, pp 2641-2645

Abstract: The authors study of the variation with temperature of the spin-lattice relaxation time for  $\text{Sm}^{3+}$  ions in  $\text{CaWO}_4$  single crystals and for  $\text{HO}^{3+}$  ions in single crystals of  $\text{CaWO}_4$  and  $\text{PbMoO}_4$ . Measurement of relaxation times in the  $\text{CaWO}_4:\text{Sm}^{3+}$  system were made on a frequency of  $\sim 8.8$  GHz by the method of saturation of the spin echo signal, on a frequency of  $\sim 2.9$  GHz by the method of pulse saturation, and from broadening of the EPR signal. The relaxation times for  $\text{Ho}^{3+}$  in calcium tungstate and lead molybdate were found from the variation with temperature of the width of the EPR lines on a frequency of approximately 36.0 GHz.

It was found that direct, Raman, and Obrakhovskiy processes make an appreciable contribution to the probability of spin-lattice relaxation for  $\text{CaWO}_4:\text{Sm}^{3+}$  at temperatures of 1.5-10°K. It was found from the probability of the Obrakhovskiy process that the first excited Stark level of the term  $^6H_{5/2}$  is located above the ground state by a distance of  $61.5 \text{ cm}^{-1}$ .

USSR

ANTIPIN, A. A. et al., Fizika Tverdogo Tela, Vol 11, No 9, pp 2641-2645

which agrees satisfactorily with the calculation of the Stark structure for this term. Theoretical valuations are also given for the relaxation times for the calcium tungstate-samarium ion system using the Jeffries method.

Spin-lattice interaction of  $\text{Ho}^{3+}$  ions in calcium tungstate and lead molybdate crystals in the 10-20°K temperature range is determined by the Obrakhovskiy relaxation mechanism.

The authors thank A. M. Morozov for furnishing the single crystals for the research, R. Yu. Abdulsabirov for assistance in carrying out the experiment, and E. Kh. Ivoylova and O. I. Mar'yakhina for assistance in making the calculations. Two figures, bibliography of twenty-two titles.

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Acc. No. **AP0049131** Abstracting Service: Ref. Code: **4R 0079**  
CHEMICAL ABST. 5-70

100845j Reaction of germanium and tin tetrachlorides with aluminumalkyl compounds. Antipin, L. M.; Stepina, E. M.; Mironov, V. E. (USSR). *Zh. Obshch. Khim.* 1970, 40(1), 115-18 (Russ). The subject reactions were run in argon atm.  $\text{GeCl}_4$  (18.5 g) and 10.9 g  $\text{EtAlCl}_2$  in 5 hr at  $100-5^\circ$  gave 66.5%  $\text{GeCl}_4$ , 85%  $\text{Et}_3\text{GeCl}$ , and 1.1%  $\text{Et}_2\text{GeCl}_2$ , with some  $\text{EtGeCl}_3$ . Adding 59.8 g  $\text{GeCl}_4$  to 35.4 g  $\text{EtAlCl}_2$  and heating 4.5 hr at  $90-100^\circ$  gave 11%  $\text{GeCl}_4$ , 85.6%  $\text{Et}_3\text{GeCl}$ , 1.8%  $\text{Et}_2\text{GeCl}_2$ , and some  $\text{EtGeCl}_3$ . Similarly, 12.2 g ethylaluminum sesquichloride and 20.6 g  $\text{GeCl}_4$  gave 41.2%  $\text{GeCl}_4$ , 84%  $\text{Et}_3\text{GeCl}$ , 5.4%  $\text{Et}_2\text{GeCl}_2$ , and some  $\text{EtGeCl}_3$ ; from equimolar amts.  $\text{Et}_3\text{Al}$  and  $\text{GeCl}_4$  were obtained 80.2%  $\text{Et}_3\text{GeCl}$  and traces of the other chlorides.  $\text{Et}_2\text{AlCl}$  and  $\text{GeCl}_4$  gave 31.6%  $\text{GeCl}_4$ , 85.6%  $\text{Et}_3\text{GeCl}$ , and traces of other chlorides. Heating  $\text{GeCl}_4$  and  $\text{Et}_3\text{Ge}$  18 hr, at  $200^\circ$  gave 80%  $\text{Et}_3\text{GeCl}$ . Treating 10.1 g  $\text{Et}_3\text{Al}$  with 23.2 g  $\text{SnCl}_4$  gave 86%  $\text{Et}_3\text{SnCl}$  and 5.9%  $\text{Et}_2\text{SnCl}_2$ . Adding 18.9 g  $\text{SnCl}_4$  to 8.25 g  $\text{Et}_3\text{Al}$  at  $10-20^\circ$ , holding 2 hr, adding 30 ml  $\text{CHCl}_3$ , heating 4.5 hr at  $40-50^\circ$ , then holding 12 hr gave 6.2 g solid, decompd.  $230^\circ$ .  $(\text{Et}_3\text{SnO})_2\text{SnCl}_4$  and  $\text{Pr}_3\text{Al}$  similarly gave 72.2%  $\text{Pr}_3\text{SnCl}$  and 8.1%  $\text{Pr}_2\text{SnCl}_2$ .  $\text{SnCl}_4$  and iso- $\text{Bu}_3\text{Al}$  similarly treated gave 74.5% iso- $\text{Bu}_3\text{SnCl}$  and 17.6% iso- $\text{Bu}_2\text{Sn}$ .  $\text{SnCl}_4$  and  $\text{Et}_3\text{AlCl}$  gave 40.7%  $\text{Et}_3\text{SnCl}_2$ , m.  $82^\circ$ . Since alkylation of  $\text{GeCl}_4$  by Al compds. stops at  $\text{Et}_3\text{GeCl}$  if the Al compd. is used in deficient amounts, the formation of the other chlorogermans must be attributed to disproportionation reactions. G. M. Kosolapoff

REEL/FRAME  
19800937

1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--SELECTIVE REDUCTION OF ORGANOCHLOROSILANES -U-  
AUTHOR--(05)-ANTIPIN, L.M., BLEKH, L.M., MIRONOV, V.F.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 812-14  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGAN SILICON COMPOUND, ORGANIC SILANE, CHLORINATED ORGANIC  
COMPOUND, CHEMICAL REDUCTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--30027/1101 STEP NO--UR/0079/70/040/004/0812/0814  
CIRC ACCESSION NO--AP0123528

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124524

ABSTRACT/EXTRACT--(U) GP-U- ABSTRACT. THROUGHOUT REACTIONS WERE RUN IN DRY ARGON ATM. MIXING 0.27 MOLE ET SUB2 SICI SUB2 WITH 0.068 MOLE ALCL SUB3 AND 0.075 MOLE NAI GRADUALLY AT REFLUX GAVE 69.3PERCENT ET SUB2 SICI; WITH 0.067, 0.067 AND 0.085 MOLE OF REACTANTS, THE YIELD WAS 32.3PERCENT. SIMILARLY WERE PREPD. 31.9PERCENT MEPSICI, 11-17PERCENT ME SUB2 SICI, AND 1.5PERCENT ETSICI SUB2. SINCE THE REACTION IS VIGOROUS, IT MUST BE CONTROLLED BY USING EXCESS REAGENT SILANE OR A DILUENT SUCH AS VASELINE OIL. NO R SUB2 SICI SUB2 WERE FOUND. MEPSICI SUB2 IN THIS REACTION UNDERWENT RAPID DISPROPORTIONATION AND GAVE ME SUB2 SICI SUB2 AND PH SUB2 SICI SUB2, WHICH THEN UNDERWENT PARTIAL REDN. IF NAI IS REPLACED BY NAOL THE DISPROPORTIONATION IS INHIBITED, BUT EVEN IN THIS CASE PHICI SUB3 GAVE 4-7PERCENT PH SUB2 SICI SUB2 AND 0.8PERCENT PH SUB3 SICI. ATTEMPTED REDN. OF R SUB3 SICI GAVE R SUB2 SICI SUB2, R SUB2 SICI, R SUB3 SICI, AND R SUB3 SICI RESIDUE.

Acc. Nr. **AP0045144** Abstracting Service:  
CHEMICAL ABST.

Ref. Code

**UR0409**

✓ 90589n Reaction of digermazanes with o-carboranes. Svit-  
syn, R. A.; Zhigach, A. F.; Sobolev, E. S.; Antipin, L. M.;  
Mironov, V. F. (Gos. Nauch.-Issled. Inst., Khim. Tekhnol.  
Elementorg. Soedin., Moscow, USSR). *Khim. Geterotsikl. Soe-  
din.* 1970, (1), 127-8 (Russ). Heating 4.32 g o-carborane with  
10.1 g (Et<sub>3</sub>Ge)<sub>2</sub>NH 14 hr at 200-300°, then with 1 g added (Et<sub>3</sub>-  
Ge)<sub>2</sub>NH 12 hr at 300°, gave after treatment with MeOH 50%  
1-triethylgermyl-o-carborane, d<sub>4</sub><sup>20</sup> 1.0940, n<sub>D</sub><sup>20</sup> 1.5483. Similarly,  
1-isopropylcarborane gave in 17 hr at 245° with (Et<sub>3</sub>Ge)<sub>2</sub>NH  
27% 1-isopropyl-2-triethylgermylcarborane, n<sub>D</sub><sup>20</sup> 1.5506. 1-  
Phenylcarborane in 23 hr at 275° similarly gave 22.5% 1-phenyl-  
2-triethylgermylcarborane, n<sub>D</sub><sup>20</sup> 1.5882. G. M. Kosolapoff

REEL/FRA  
19780044

USSR

UDC 621.726.2

VOLYNSKIY, V. V., ANTIPIN, L. N., MANSKIY, Ye. G., DROZDENKO, V. A., and  
CHUB, V. Ya.

"An Investigation of the Cathode Process In Obtaining Titanium Powders of  
Increased Purity"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya  
Publishing House, Vol 6, 1970, pp 81-85

Translation: The effect of the concentration of lower titanium compounds,  
cathode density of the current, and the material of the sub-layer on the  
course of the cathode process when obtaining titanium powders with a high  
degree of purity by the electrolyte method is studied. The mechanism of  
the electrode reaction with different content of trivalent titanium in the  
electrolyte is considered. The greatest effect on the purity of the  
titanium powder obtained is exerted by the concentration of  $TiCl_3$  in the  
electrolyte. Technological conditions of electrolysis are selected which  
make it possible to obtain powder of the assigned granulometric composition  
with a 99.9% content of the primary metal. Four illustrations, one table,  
and ten bibliographic entries.

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USSR

UDC 669.295.472

VOLYNSKIY, V. V., ANTIPIN, L. N., MANSKIY, Ye. G., and CHUB, V. Ya.

"The Interaction of Oxygen With the Carbon-Graphite Anode During Electrolysis of Fluorotitanium Liquid Metals"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 89-93

Translation: Questions of the interaction of discharge oxygen with the carbongraphite anode during electrolysis of oxyfluorotitanium liquid metals are considered. The effect of oxides on the electrochemical features of the anode is studied. A thermodynamic calculation is made which demonstrates the possibility of forming oxides of the  $C_xO$  type. Such compounds are the basic reason for the slow drop in inverse electromotive force when a polarizing current is switched off. Two illustrations and five bibliographic entries.

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USSR

UDC 669.71.472

ANTIPIN, L. N., VOLYNSKIY, V. V., MANSKIY, Ye. G., CHUB, V. Ya., and  
KLIMENYUK, V. A.

"The Anode Effect During Electrolysis of Oxyfluorotitanium Fusions"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya  
Publishing House, Vol VI, 1970, pp 77-81

Translation: The reasons for the appearance of the anode effect during electrolysis of oxyfluorotitanium fusions on a carbon-graphite anode are investigated. It is demonstrated that the anode effect arises as a result of the formation of non-conducting oxides of the  $\text{COF}_2$  type on the surface. The formation of such compounds is accompanied by a worsening in wettability and leads to passivation of the anode. Study of the critical density of current in the oxyfluorotitanium fusion was done on an automatic device for recording volt-ampere dependencies. It was demonstrated that the concentration of  $\text{TiO}_2$  in the electrolyte exerts the primary influence on the size of critical current density. Experimental results are given which show the influence of  $\text{TiO}_2$  concentration on the value of critical current density. Four illustrations and 14 bibliographic entries.

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USSR

UDC 669.295.054.79

ANTIPIN, L. N., DROZDENKO, V. A., KOYGUSHSKIY, N. N., OLESOV, Yu. G.,  
~~USTINOV, V. S.~~, ZAPADNYA, V. I., VOLYNSKIY, V. V., and KALUZHSKAYA, E. I.

"The Technology for Obtaining Powders by the Electrolysis Method for  
Liquid Metals With a Soluble Anode"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya  
Publishing House, Vol 6, 1970, pp 85-89

Translation: A technological chart for producing powders of titanium and  
its alloys by the electrolysis method with a soluble anode is worked out.  
Optimal technological conditions for obtaining powders by electrolysis  
are selected. The chart has been adopted for introduction. The titanium  
powders obtained do not differ, in impurity content, from the best grades  
of titanium sponge. The effect of electrolyte temperature on the quali-  
ties of the metal obtained and the chlorine content in it are studied.  
The metal obtained is undergoing testing by users. Two illustrations,  
two tables, and two bibliographic entries.

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USSR

UDC 621.762.2

ANTIPIN, L. N., DROZDENKO, V. A., KOYGUSHSKIY, N. N., OLESOV, YU. G., USTINOV, V. S., ZAPADNYA, V. I., VOLYNSKIY, V. V., and KALUSHSKAYA, E. L.

"Technology of Production of Powders by Electrolysis of Melts With Soluble Anode"

Sb. tr. Vses. n.-i. i proyekt. in-t titana [Collected Works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, pp. 85-89, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1 G456 by the authors).

Translation: A technological plan is developed for the production of Ti and titanium alloy powders by electrolysis with a soluble anode. The optimal technological mode is selected for electrolytic powder production. The plan has been accepted for use. The Ti powders produced are equal in impurity content to the best types of Ti sponge. The influence of electrolyte temperature on properties of the Ti produced and on content of Cl is studied. The Ti produced has passed consumers' tests. 2 figures; 2 tables.

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USSR

UDC 669.295.472

VOLYNSKIY, V. V. ANTIPIN, L. N., MANSKIY, Ye. G., and CHUB, B. Y.

"Interaction of Oxygen with Carbon-Graphite Anode During Electrolysis of Fluorotitanate Melts"

Sb. tr. Vses. n.-i. i proyekt. in-t titana [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 89-93, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No.1'G194 by the authors).

Translation: Problems of the interaction of discharged O with the carbon-graphite anode during electrolysis of oxyfluorotitanate melts are studied. The influence of oxides on the electrochemical characteristics of the anode are studied. Thermodynamic calculation shows the possibility of formation of  $C_xO$  type oxides. These compounds are the primary cause of slow decreases in the reverse electromotive force when the polarizing current is turned off. 2 figures; 5 biblio; refs.

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USSR

UDC 669.295.472

ANTIPIN, L. N., BOLYNSKIY, V. V., MANSKIY, Ye. G., CHUB, V. Ya., and  
KLIMENYUK, V. A.

"Anode Effect During Electrolysis of Oxyfluorotitanate Melts"

Sb. tr. Vses. n.-i. i proyekt. in-t titana [Collected works of All-Union Scientific-Research and Planning Institute for Titanium], 6, 1970, 77-81, (Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract No. 1 G193 by the authors).

Translation: The causes for the formation of the anode effect during electrolysis of oxyfluorotitanate melts on a carbon-graphite anode are studied. The anode effect arises as a result of formation of non-conducting oxides such as  $\text{COF}_2$  on the surface. The formation of these compounds is accompanied by worsening of wettability and leads to passivation of the anode. Study of the critical D in oxyfluorotitanate melts was performed on an automatic installation recording the volt-ampere functions. Primary influence on the value of critical D is that of the concentration of  $\text{TiO}_2$  in the electrolyte. Experimental results are presented demonstrating the influence of  $\text{TiO}_2$  concentration on critical D. 4 figures; 14 biblio. refs.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--2300170  
TITLE--ROLE OF THE COOPERATIVE INTERACTION OF GROWING CHAINS AND  
MACROMOLECULAR MATRIXES DURING POLYMERIZATION -U-  
AUTHOR--(05)-OSADA, YE., ANTIPINA, A.D., PAPISOV, I.M., KABANDOV, V.A.,  
KARGIN, V.A.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 379-402 (PHYS CHEM)  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MACROMOLECULE, METHACRYLIC ACID, POLYMERIZATION, HYDROGEN  
BONDING, CHEMICAL REACTION RATE, MOLECULAR INTERACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1127 STEP NO--UR/0020/70/191/002/0379/0402  
CIRC ACCESSION NO--AT0119981  
UNCLASSIFIED